

What is claimed is:

- 1 1. An apparatus, comprising:
  - 2 a semiconductor device formed on a conductivity region; and
  - 3 a low resistive path barrier formed surrounding the conductivity region to isolate the
  - 4 conductivity region from a substrate that supports the conductivity region and the low
  - 5 resistive path barrier.
- 1 2. The apparatus of claim 1, further comprises of a deep trench isolation formed
  - 2 surrounding the low resistive path barrier on the opposite side of the conductivity region.
- 1 3. The apparatus of claim 2, wherein the deep trench isolation extends into the
  - 2 substrate.
- 1 4. The apparatus of claim 1, wherein the conductivity region is at least one of n-type
  - 2 and p-type conductivity regions.
- 1 5. The apparatus of claim 1, wherein the semiconductor device is a selected one of
  - 2 CMOS, BiCMOS, NMOS and PMOS.
- 1 6. The apparatus of claim 1, wherein the low resistive path barrier is coupled to a
  - 2 power supply.
- 1 7. The apparatus of claim 1, wherein the substrate is selected from one of p-type
  - 2 and n-type substrate.
- 1 8. The apparatus of claim 1, wherein the low resistive path barrier comprises of a
  - 2 plug coupled to a buried layer.

- 1 9. The apparatus of claim 8, wherein the plug is coupled to a power supply.
- 1 10. The apparatus of claim 1, wherein the low resistive path barrier comprises a  
2 selected one of N+ and P+ doped material.
- 1 11. The apparatus of claim 1, wherein the deep trench isolation comprises of a  
2 selected one of a dielectric and an insulation material.
- 1 12. The apparatus of claim 1, wherein the substrate is biased to 0 volts.
- 1 13. The apparatus of claim 1, wherein the low resistive path barrier comprises of a  
2 first capacitive decoupling junction located at an interface between the low resistive path  
3 barrier and the conductivity region, and a second capacitive decoupling junction located  
4 at an interface between the low resistive path barrier and the substrate.
- 1 14. The apparatus of claim 7, wherein the plug having a resistivity of about 0.01  
2 ohm-cm and the buried layer having a resistivity of about 0.005 ohm-cm.
- 1 15. The apparatus of claim 2, wherein the deep trench isolation having a depth of  
2 about 5  $\mu\text{m}$ .
- 1 16. A method comprising:  
2 forming a semiconductor device on a conductivity region; and  
3 forming a low resistive path barrier that surrounds the conductivity region to isolated the  
4 conductivity region from a substrate that supports the conductivity region and the low  
5 resistive path barrier,

- 1 17. The method of claim 16, further comprises forming a deep trench isolation  
2 surrounding the low resistive path barrier on the opposite side of the conductivity region.
- 1 18. The method of claim 16, further comprises coupling the low resistive path barrier  
2 to a power supply.
- 1 19. The method of claim 16, wherein the semiconductor device is a selected one of  
2 CMOS, BiCMOS, NMOS and PMOS.
- 1 20. The method of claim 16, wherein the conductivity region is at least one of n-type  
2 and p-type conductivity regions.
- 1 21. The method of claim 16, wherein the formed low resistive path barrier comprises  
2 a plug coupled to a buried layer.
- 1 22. The method of claim 21, further comprises coupling the plug to a power supply.
- 1 23. The method of claim 17, wherein forming of deep trench isolation further  
2 comprises filling the deep trench isolation with a selected one of a dielectric or a  
3 insulation material.
- 1 24. The method of claim 16, wherein the formed low resistive path barrier comprises  
2 a selected one of N+ and P+ doped material.
- 1 25. A system, comprising:  
2 an integrated circuit having a semiconductor device formed on a conductivity  
3 region, including

4 a low resistive path barrier formed surrounding the conductivity region to isolated the  
5 conductivity region from a substrate that supports the conductivity region and the low  
6 resistive path barrier;  
7 a bus coupled to the integrated circuit; and  
8 a networking interface coupled to the bus.

1 26. The system of claim 25, further comprises a deep trench isolation formed  
2 surrounding the low resistive path barrier on the opposite side of the conductivity region;

1 27. The system according to claim 25, wherein the low resistive path barrier is  
2 coupled to a power supply.

1 28. The system according to claim 25, wherein the semiconductor device is selected  
2 from one of CMOS, BiCMOS, NMOS and PMOS.

1 29. The system according to claim 25, wherein the low resistive path barrier  
2 comprises a selected one of N+ and P+ doped material.

1 30. The system according to claim 25, wherein the low resistive path barrier  
2 comprises of a plug and a buried layer.